

IN THE CLAIMS

1. (Presently Amended) A ventilated seat for a vehicle, comprising:
a vehicle seat having a ventilated component selected from a seat cushion component and a seat backrest component, at least one of which provides a seat cushion and an air permeable trim surface at occupant contact areas of the seat;
an insert that is open at its sides and located beneath the trim surface of the ventilated component, the insert including: ~~a spacer layer formed of an air permeable foam material;~~
 - i) a first layer having a heater integrated therein;
 - ii) a second layer formed of spacer material, the second layer defining an open space;a fluid mover in fluid communication with the insert for moving air through the open space and at least partially past an occupant in the seat ~~insert and the trim surface;~~ and
a tubular structure for providing the fluid communication between the insert and the fluid mover.
2. (Presently Amended) The ventilated seat of claim 1 wherein the ~~insert further comprises an adhesive layer for adhering the insert to the seat cushion.~~ spacer material includes polymeric strand material.
3. (Presently Amended) The ventilated seat of claim 2 wherein the ~~tubular structure is provided by a foam seat cushion and defines a passageway through the cushion.~~ spacer material provides opposing honeycomb structures that are formed of a finer filament polymeric strand material than the rest of the spacer material.
4. (Presently Amended) The ventilated seat of claim 3 1 wherein a ~~deflector is disposed over the passageway defined by the tubular structure~~ the insert further comprises an adhesive layer for adhering the first layer to the second layer.

5. (Presently Amended) The ventilated seat of claim 4 1 wherein ~~a plurality of sub-passageways are formed in the foam seat cushion and extend away from the passageway of the foam seat cushion~~ the tubular structure is provided by the foam cushion and defines a passageway through the cushion.
6. (Presently Amended) The ventilated seat of claim 5 1 wherein the ~~foam seat cushion, the tubular structure, the sub-passageways, and combinations thereof include an air impermeable lining or coating~~ tubular structure is integral with the insert.
7. (Presently Amended) The ventilated seat of claim 6 1 wherein the ~~fluid mover is a blower configured to pull air through the spacer layer~~ tubular structure is defined by a wall and a portion of the wall nearest a forward edge of the seat cushion component is at an angle between about 20 degrees and about 60 degrees relative to another portion of the wall nearest a rearward edge of the seat cushion component.
8. (Presently Amended) The ventilated seat of claim 6 5 wherein the ~~fluid mover is a blower configured to push air through the spacer layer~~ a deflector is disposed over the passageway defined by the tubular structure for assisting in directing fluid radially away from the passageway.
9. (Presently Amended) The ventilated seat of claim 6 8 wherein ~~the insert further comprising a heater layer.~~ a plurality of sub-passageways are formed in the foam cushion and extend radially away from the passageway of the foam cushion.
10. (Presently Amended) The ventilated seat of claim 9 1 wherein ~~the insert is a multi-layer laminate~~ further comprising a control unit for selectively operating the fluid mover, the heater layer or both.
11. (Presently Amended) The ventilated seat of claim 10 wherein the ~~ventilated component further comprises at least one temperature sensor~~ control unit is configured

to operate the heater layer, the fluid mover or both at two or more different output levels.

12. (Presently Amended) The ventilated seat of claim 11, ~~10~~ further comprising a control unit in signaling communication with the temperature sensor, the fluid mover, the heater layer or combinations thereof wherein the control unit is in signaling communication with a temperature sensor and the control unit is configured to activate the fluid mover if a relatively high temperature is sensed by the sensor and activate the heater if a relatively low temperature is sensed by the sensor.

13. (Presently Amended) The ventilated seat of claim 12, ~~1~~ wherein ~~in the insert covers only a portion of the foam seat cushion.~~ the fluid mover is configured to pull air through the open space provided by the spacer layer.

14. (Presently Amended) A ventilated seat for a vehicle, comprising:
—— ~~a multi-layer laminate insert that is open at its sides and located beneath a trim surface of a ventilated component, the insert including a spacer layer including an air permeable foam material and an adhesive layer for attaching the insert to a seat cushion;~~
—— ~~a blower in fluid communication with the insert for moving air through the spacer layer and the trim surface;~~
—— ~~a duct for providing the fluid communication between the insert and the blower, wherein the duct is at least partially provided by the seat cushion and defines a passageway through the cushion;~~
—— ~~a deflector is disposed over the passageway defined by the duct; and~~
—— ~~a plurality of sub-passageways that extend away from the passageway.~~ The ventilated seat of claim 1 wherein the fluid mover is configured to push air through the open space of the spacer layer.

15. (Presently Amended) ~~The~~ A ventilated seat of claim 13 wherein the plurality of sub-passageways extend away from the passageway of the foam seat cushion for a vehicle, comprising:

a vehicle seat having a ventilated component selected from a seat cushion component and a seat backrest component, at least one of which provides a seat cushion and an air-permeable trim surface at occupant contact areas of the seat;

an insert that is open at its sides and located beneath the trim surface of the ventilated component, the insert including:

- i) a first layer having a lay-wire carbon fiber heater integrated therein;
- ii) a second layer formed of spacer material laminated to the first layer with an adhesive, the spacer layer including a pair of fabric panels interconnected by polymeric strand materials for defining an open space between the fabric panels; and
- iii) a buffer layer incorporated into the insert adjacent the first layer, the buffer layer being breathable for allowing fluid flow therethrough.

a fluid mover in fluid communication with the insert for moving air under positive pressure through the open space and at least partially past an occupant in the seat; and

a tubular structure extending through the seat cushion and defining a passageway for providing the fluid communication between the insert and the fluid mover, the tubular structure including an enlarged portion.

16. (Presently Amended) ~~The ventilated seat of claim 14~~ 15 wherein the foam seat cushion, the duct, the sub-passageways, and combinations thereof include an air impermeable lining or coating fabric panels of the spacer layer are opposing honeycomb structures that are formed of a finer filament polymeric strand material than the rest of the spacer material.

17. (Presently Amended) ~~The ventilated seat of claim 15 wherein the fluid mover is a blower configured to pull air through the spacer layer~~ tubular structure is integral with the insert.

18. (Presently Amended) The ventilated seat of claim 15 wherein the ~~fluid mover is a blower configured to push air through the spacer layer.~~ tubular structure is defined by a wall and a portion of the wall nearest a forward edge of the seat cushion component is at an angle between about 20 degrees and about 60 degrees relative to another portion of the wall nearest a rearward edge of the seat cushion component.

19. (Presently Amended) The ventilated seat of claim 15 wherein the ~~insert further comprising a heater layer~~ a deflector is disposed over the passageway defined by the tubular structure for assisting in directing fluid radially away from the passageway.

20. (Presently Amended) The ventilated seat of claim ~~18~~ 19 wherein a ~~further comprising at least one temperature sensor~~ a plurality of sub-passageways are formed in the foam cushion and extend radially away from the passageway of the foam cushion.

21. (Presently Amended) The ventilated seat of claim ~~19,~~ 15 further comprising a ~~control unit in signaling communication with the temperature sensor, the fluid mover, the heater layer or combinations thereof~~ control unit for selectively operating the fluid mover, the heater layer or both.

22. (Presently Amended) The ventilated seat of claim ~~20~~ 21 wherein the ~~duct is a flexible duct~~ control unit is configured to operate the heater layer, the fluid mover or both at two or more different output levels.

23. (Presently Amended) The ventilated seat of claim ~~22,~~ 21 wherein ~~in the insert covers only a portion of the foam seat cushion~~ the control unit is in signaling communication with a temperature sensor and the control unit is configured to activate the fluid mover if a relatively high temperature is sensed by the sensor and activate the heater if a relatively low temperature is sensed by the sensor.

24. (Presently Amended) ~~A~~ The ventilated seat for a vehicle, comprising:

- ~~—— a vehicle seat having a ventilated component selected from a seat cushion component and a seat backrest component, at least one of which provides a seat cushion and an air permeable trim surface at occupant contact areas of the seat;~~
- ~~an insert that is open at its sides and located beneath the trim surface of the ventilated component, the insert including a spacer layer formed of an air permeable foam material and an adhesive layer for attaching the insert to a seat cushion;~~
- ~~—— a blower in fluid communication with the insert for moving air through the spacer layer and the trim surface;~~
- ~~—— a duct for providing the fluid communication between the insert and the blower, wherein the duct is at least partially provided by the seat cushion and defines a passageway through the cushion;~~
- ~~—— a deflector is disposed over the passageway defined by the duct; and~~
- ~~—— a plurality of sub-passageways that extend away from the passageway;~~
- ~~—— wherein the foam seat cushion, the duct, the sub-passageways, and combinations thereof include an air impermeable lining or coating of claim 21 wherein the fluid mover is configured to pull air through the open space provided by the spacer layer.~~

25. (Presently Amended) The ventilated seat of claim 24, 22 wherein ~~in the insert covers only a portion of the foam seat cushion~~ the fluid mover is configured to push air through the open space of the spacer layer.

26. (Presently Amended) ~~The~~ A ventilated seat of claim 25, further comprising at least one temperature sensor. for a vehicle, comprising:

- a vehicle seat having a pair of ventilated components including a seat cushion component and a seat backrest component, both the seat cushion component and the seat backrest component providing a seat cushion and an air-permeable trim surface at occupant contact areas of the seat;

a pair of inserts, one in the seat cushion component and one in the seat backrest component, each insert being open at its sides and located beneath the trim surface of each ventilated component, each insert including:

- i) a first layer having a lay-wire carbon fiber heater integrated therein;
- ii) a second layer formed of spacer material laminated to the first layer with an adhesive, the spacer layer including a pair of fabric panels interconnected by polymeric strand materials for defining an open space between the fabric panels; and
- iii) a buffer layer incorporated into the insert adjacent the first layer, the buffer layer being breathable for allowing fluid flow therethrough.

a pair of fluid movers respectively in fluid communication with the pair of inserts for moving air through the open space of each insert and at least partially past an occupant in the seat; and

a pair of tubular structures, each structure respectively extending through each seat cushion of each ventilated component and defining a passageway for providing the fluid communication between the respective inserts and the respective fluid movers, each tubular structure including an enlarged portion.

27. (Presently Amended) ~~The A ventilated seat of claim 26, further comprising a control unit in signaling communication with the temperature sensor, the fluid mover, the heater layer or combinations thereof~~ for a vehicle, comprising:

a multi-layer laminate insert that is open at its sides and located beneath the trim surface of the ventilated component, the insert including:

- i) a first layer having a heater integrated therein, the heater including a plurality of flexible electrical substantially flat heating elements;
- ii) a second layer formed of spacer material, the second layer defining an open space;

a blower in fluid communication with the insert for moving air through the open space and at least partially past an occupant in the seat; and

a duct for providing the fluid communication between the insert and the blower.

28. (Presently Amended) A ~~The method for operating an automotive vehicle seating comfort system, comprising:~~

~~—— providing a seat insert that is open at its sides and located between a trim surface and a foam seat cushion of a ventilated component, wherein the insert comprises a spacer layer formed of an air permeable foam material;~~

~~—— moving a fluid through the insert and the trim surface with the aide of a blower to heat, cool, ventilate, or a combination thereof the ventilated component, wherein the blower and the insert are fluidly connected via a duct;~~

~~controlling the temperature of the ventilated seat with at least one temperature sensor in signal communication with a control unit adapted to adjust the amount of heating, cooling, ventilating or combination thereof of the ventilated component~~
ventilated seat of claim 27, further comprising a plurality of sub-passageways.

29. (Presently Amended) ~~The method of claim 28, wherein the moving step comprises moving the fluid through a duct that is at least partially provided by the foam seat cushion and that defines a passageway through the cushion~~
ventilated seat of claim 28 wherein the duct provides a passageway and the plurality of sub-passageways extend radially away from the passageway.

30. (Presently Amended) ~~The method of~~ ventilated seat of ~~claim 29,~~ 27 wherein the moving step comprises moving the fluid through at least one sub-passageways that extend away from the passageway plurality of heating elements are wires or carbon fibers laminate to a backing.

31. (Presently Amended) ~~The method of~~ ventilated seat of ~~claim 30,~~ 27 wherein the moving step comprises deflecting the fluid that has moved through the passageway to the at least one sub-passageway spacer material includes polymeric strand material.

32. (Presently Amended) ~~The method of~~ ventilated seat of ~~claim 31,~~ 27 wherein the moving step comprises moving the fluid through a duct, passageway, sub-passageway, or a combination thereof with an air impermeable coating or lining spacer material

provides opposing honeycomb structures that are formed of a finer filament polymeric strand material than the rest of the spacer material.

33. (Presently Amended) The ~~method of~~ ventilated seat of claim 32, 27 wherein the ~~providing step comprises attaching the insert to the foam seat cushion~~ insert further comprises an adhesive layer for adhering the first layer to the second layer.

34. (Presently Amended) The ~~method~~ ventilated seat of claim 33, 27 wherein the ~~providing step comprises adhering the insert to the foam seat cushion~~ duct is provided by a foam cushion and defines a passageway through the cushion.

35. (Presently Amended) The ~~method~~ ventilated seat of claim 34, 27, wherein the ~~providing step comprises locating the insert over only a portion of the seat cushion~~ duct is defined by a wall and a portion of the wall nearest a forward edge of the seat cushion component is at an angle between about 20 degrees and about 60 degrees relative to another portion of the wall nearest a rearward edge of the seat cushion component.

36. (Presently Amended) The ~~method~~ ventilated seat of claim 35, 34 wherein ~~providing step wherein the trim surface is air permeable on at occupant contact areas of the ventilated component~~ a deflector is disposed over the passageway defined by the tubular structure for assisting in directing fluid radially away from the passageway.

37. (Presently Amended) The ~~method~~ ventilated seat of claim 36, wherein the ~~insert comprises a heater layer~~ a plurality of sub-passageways are formed in the foam cushion and extend radially away from the passageway of the foam cushion.

38. (Presently Amended) The ~~method~~ ventilated seat of claim 37, 27 ~~wherein the controlling step comprises locating the at least one temperature sensor between the trim surface and the insert~~ further comprising a control unit for selectively operating the fluid mover, the heater layer.

39. (Presently Amended) The method ventilated seat of claim 38, wherein the ~~controlling step comprises issuing instructions from the control unit to provide cooling, ventilation, less heating or combinations thereof when the temperature sensor senses the ventilated component has reached or is at a temperature above a threshold~~ temperature control unit is configured to operate the heater layer, the fluid mover or both at two or more different output levels.

40. (Presently Amended) The method ventilated seat of claim 39, wherein the ~~controlling step comprises issuing instructions from the control unit to provide heating, less cooling, less ventilation or combinations thereof when the temperature sensor senses the ventilated component has reached or is at a temperature below a threshold~~ temperature the control unit is in signaling communication with a temperature sensor and the control unit is configured to activate the fluid mover if a relatively high temperature is sensed by the sensor and activate the heater if a relatively low temperature is sensed by the sensor.

41. (Presently Amended) ~~A method of providing comfort to a seat occupant, comprising:~~

~~—— moving a fluid with the aide of a blower through a multi-layer laminate insert comprising a spacer layer comprising an air permeable foam material and an adhesive layer, where the insert is located between an air permeable trim surface and a seat cushion, wherein the seat cushion may part of a backrest component, a seat cushion component, or a combination thereof; and~~

~~—— controlling the temperature of an occupant by issuing instruction from a control unit to provide cooling, ventilation, less heating or combinations thereof when a temperature sensor senses the occupant, the trim surface, the seat cushion, the insert, or combinations thereof have reached or is at a temperature above a first threshold temperature or to provide heating, less cooling, less ventilation or combinations thereof when the temperature sensor senses the occupant, the trim surface, the seat cushion, the insert, or combinations thereof has reached or us at a temperature below a second~~

~~threshold temperature.~~ The ventilated seat of claim 37 wherein the fluid mover is configured to pull air through the open space provided by the spacer layer.

42. (Presently Amended) ~~The method of claim 41, wherein the moving step comprises moving the fluid through a duct that is at least partially formed by the seat cushion to form a passageway.~~ A ventilated seat as in claim 37 wherein the fluid mover is configured to push air through the open space of the spacer layer.

43. (Presently Amended) ~~The~~ A ~~method of claim 42, wherein the moving step comprises deflecting the moving fluid upon exiting the passageway to at least one sub-passageway with the seat cushion~~ forming a ventilated seat, comprising:

providing a ventilated component selected from a seat cushion component and a seat backrest component, at least one of which provides a seat cushion and an air-permeable trim surface at occupant contact areas of the seat;

providing a multilayer insert overlaying a cushion of an automotive vehicle seat the insert including;

- i) a first layer having a heater integrated therein, the heater including a plurality of flexible electrical substantially flat heating elements;
- ii) a second layer formed of spacer material, the second layer defining an open space;

providing a fluid mover;

providing a passageway interconnecting the open space of the second layer and the insert for providing fluid communication therbetween;

inducing electrical current to flow through the heating elements for heating an occupant in the seat;

moving air through the open space and at least partially past an occupant in the seat.

44. (Presently Amended) ~~The method of claim 43, wherein the passageway, the at least one sub-passageway, or combinations thereof are lined or coated to make them~~

~~impermeable to air~~ step of moving air includes moving air through the open space before moving air at least partially past an occupant in the seat.

45. (Presently Amended) The method of claim 44, wherein the ~~blower is configured to pull air through the insert~~ step of moving air includes moving air through the open space after moving air at least partially past an occupant in the seat.

46. (Presently Amended) The method of claim ~~44~~ 43, wherein the ~~blower is configured to push air through the insert~~ further comprising providing a plurality of sub-passageways in fluid communication with the fluid mover, the duct and the open space for assisting in guiding fluid flow between the blower and the open space.

47. (New) A method as in claim 46 wherein the plurality of sub-passageways extend radially away from the passageway.

48. (New) A method as in claim 43 wherein the plurality of heating elements are wires or carbon fibers laminate to a backing.

49. (New) A method as in claim 43 wherein the spacer material includes polymeric strand material.

50. (New) A method as in claim 49 wherein the spacer material provides opposing honeycomb structures that are formed of a finer filament polymeric strand material than the rest of the spacer material.

51. (New) A method as in claim 50 wherein the insert further comprises adhering the first layer to the second layer.

52. (New) A method as in claim 43 wherein the passageway extends through the cushion.

53. (New) A method as in claim 43 wherein the passageway is defined by a wall and a portion of the wall nearest a forward edge of the seat cushion component is at an angle between about 20 degrees and about 60 degrees relative to another portion of the wall nearest a rearward edge of the seat cushion component.
54. (New) A method as in claim 43 further comprising providing a control unit for selectively operating the fluid mover, the heater layer or both.
55. (New) A method as in claim 54 wherein the control unit is configured to operate the heater layer, the fluid mover or both at two or more different output levels.
56. (New) A ventilated seat as in claim 55 wherein the control unit is in signaling communication with a temperature sensor and the control unit is configured to activate the fluid mover if a relatively high temperature is sensed by the sensor and activate the heater if a relatively low temperature is sensed by the sensor.